2013 Toledo Bend Reservoir Aquatic Vegetation Control Plan

LDWF, Inland Fisheries

Aquatic Vegetation Status:

As of January 1, 2013 the coverage of problematic plant species at Toledo Bend Reservoir was estimated to be:

Giant Salvinia, (*Salvinia molesta*)– 1,200 acres.
Hydrilla, (*Hydrilla verticillata*) – 7,000 acres.
Nutsedge, *(Cyperus ssp.)*- 200 acres.
Water hyacinth, *(Eichhornia crassipes)*- 75 acres.

No aquatic plant is classified as beneficial in Toledo Bend Reservoir at this time. No effort is planned to establish or re-establish any aquatic species.

Limitations:

Physical Limitations

- A primary limitation at this waterbody is the scale of the lake. At 181,600 acres, Toledo Bend Reservoir is the largest manmade waterbody in the South. Wind in particular can limit both herbicide application and boat access at times. Whole waterbody treatments are impractical on a lake of this size.
- Muddy water is routinely encountered in upper reaches of the main lake and individual coves. This condition limits use of particular herbicides such as Diquat.
- The upper lake area is shallow as are the upper reaches of coves. This factor limits boat access when making herbicide applications.

Regulatory Limitations

- This lake is a border water with Texas. Cooperation between state agencies on either side is required to accomplish goals of all stakeholders.
- The lake is owned by the Sabine River Authority of Louisiana and the Sabine River Authority of Texas. These agencies must be included in management discussions for this lake.
- Three municipal water systems and numerous shoreline property owners withdraw water from the lake.
- This lake is a hydroelectric power source. Power generation greatly influences water levels throughout the year.

Past Control Measures:

Biological

The salvinia weevil (*Cyrtobagous salviniae*) is being used as a biological control for giant salvinia at Toledo Bend Reservoir. The weevils have shown an ability to reduce the amount of giant salvinia in areas where they have been released. To date, 65 weevil releases have been made. Many small scale releases were made by Sabine River Authority of Louisiana staff. These were accomplished by transporting small amounts of host plant material to various locations. Incomplete data for these releases include dates, amounts of material and source locations. However, it is known that the host plant material was collected from known weevil locations on the Louisiana side of the reservoir.
Data related to giant salvinia weevil releases are included in Appendix IV of MP-A.

Chemical

LDWF has an aquatic vegetation chemical control program in place on Toledo Bend Reservoir. This program is directed primarily at emergent and floating vegetation.

Table 1 – Area of aquatic vegetation treated by year in Toledo Bend Reservoir.

YEAR	ACRES
1996	121
1997	314
1998	34
1999	673
2000	1,918
2001	737
2002	654
2003	563
2004	1,373
2005	249
2006	414
2007	2,814
2008	2,552
2009	5,047
2010	717
2011	432
2012	1,455
Reduced spray efforts of 2010 and 2011 due to: 1) Cold weather periods of 2009 & 2010 that provided associated reductions in emergent plant coverage. 2) The drought of 2011 that resulted in record low water levels and additional control of aquatic vegetation.	

Physical

Physical control features that exist in Toledo Bend include:

1) Hydroelectric power generation results in water level fluctuation and reasonably good submerged vegetation control along the reservoir shoreline.
2) The reservoir has ample wind and wave action to strand floating aquatic vegetation along the shoreline.
3)

Typemap

Table 2. Total acreage of plant species found in Toledo Bend Reservoir, Louisiana during annual plant surveys from 2003 – 2012.

YEAR	HYDRILLA	COONTAIL	PONDWEED	GIANT SALVINIA
2003	1,600 acres	20 acres	60 acres	~
2004	1,900 acres	30 acres	90 acres	240 acres
2005	Not surveyed	Not surveyed	Not surveyed	2,150 acres
2006	Not surveyed	Not surveyed	Not surveyed	250 acres
2011	Not surveyed	Not surveyed	Not surveyed	25 acres
2012	Not surveyed	Not surveyed	Not surveyed	Not surveyed

Recommendations:

Continue foliar herbicide application at boat ramps and in areas where vegetation hampers boating access. LDWF crews should continue herbicide applications in response to complaints from the public. These applications will be principally directed toward control of giant salvinia (*Salvinia molesta*) and water hyacinth (*Eichhornia crassipes*), but will also include control of other floating or emergent vegetation as needed. Water hyacinth will be treated by foliar application of 2,4-D herbicide at a rate of 0.5 gallons per acre. Giant salvinia will be treated with foliar applications of a mix of glyphosate (0.75 gal/acre) and diquat (0.25 gal/acre) with Aqua King Plus (0.25 gal/acre) and Thoroughbred (8 oz/acre) surfactants from April 1 to October 31. Diquat (0.75 gal/acre) will be used outside of that time frame. All foliar applications should include a surfactant at 0.25 gallons per acre and should be made to the greatest extent possible within manpower and equipment limitations. Continue release of giant salvinia weevils.

The use of contracted sprayers is recommended in early season efforts to reduce coverage of giant salvinia. Aerial applications should be used whenever possible to facilitate rapid and widespread treatments. Airboat based contract sprayers should be used in areas not suitable for aerial applications.